BOB MILLER
Governor

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF WILDLIFE
1100 Valley Road
P.O. Box 10678
Reno, Nevada 89520-0022
(702) 688-1500 • Fax (702) 688-1595

PETER G. MORROS
Director
Department of Conservation
and Natural Resources

WILLIAM A. MOLINI
Administrator

February 12, 1996

Judy Bloom
Source Water Protection
75 Hawthorne Street
San Francisco, CA 94105
W63

RE: Low Ph Information

Dear Ms. Bloom:

I have enclosed the copies of the information I have gathered concerning the threat of low Ph solutions to wildlife. I have just received some information relating to the death of several hundred snow geese f rom exposure to low Ph solutions in the Berkeley Pit, located in Butte, Montana. I am attempting to gather more information on this episode. If any additional information becomes available that appears pertinent to your issue, I will forward it to you. If you have any additional questions, please contact me.

Sincerely,

Rory E. Lamp
Biologist
1375 Mountain City Highway
Elko, NV 89801
(702) 738-5332

RL
cc: Habitat Bureau
File

+R Case 122

Director, NFWHL

7 July 1976

Clinical Diagnostician
NFWHL

Salt Lake Die-Off (PR 122)

The specimens mentioned in my report as being from Salt Lake City area and for which we have no diagnosis are from a die-off investigated by Agent Hogue. He believes this particular die off is related to the discharges from a ceramic plant (Filtrol Corporation) to a settling basin and we have been investigating this aspect.

This appears to be a different die-off than the one investigated by Dr. Jensen in which he found that erysipelas was responsible. Mrs. Duncan has cultured half of the specimens submitted by Agent Hogue in this shipment and has been unable to isolate any *Erysipelothrix*.

We have already had the tissue samples analyzed for a wide variety of industrial pollutants which have often been associated with ceramic plants. No significant chemical results were obtained.

We recently (29 June) received a communication from Agent Hogue in which he provided us with some PH values of the water samples taken from these ponds. The PH values ranged from 1.3 to 2.5.

We are still trying to determine the cause of these losses.

Louis Locke

Louis N. Locke, DVM

LNL:jm

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

MWHR-122

UNITED STATES GOVERNMENT

Memorandum

TO : Louis N. Locke, DVM
Clinical Diagnostician, Madison, Wisconsin

DATE: June 22, 1976

FROM : SRA James H. Hogue
Salt Lake City, Utah

SUBJECT: Water Analysis - Filtrol Corporation

Attached is an EPA analysis made on samples of water from five ponds of the Filtrol Corporation clay products plant. Hopefully, this will be of some value in determining the cause of death of the bird samples sent to you earlier.

J H Hogue

5010-108

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, DENVER, COLORADO

INV 9-13475 ON

LABORATORY SERVICES REQUEST

PROJECT NAME Filtrol Corp PROJECT CODE _____ SAMPLES COLL. BY _____ DATE _____

SAMPLES RECEIVED AT LABORATORY BY L. J. Wampler DATE 4/9/76 DATA REVIEWED BY _____

STATION CODE		SW Pond	NE Pond	NW Pond	Center Pond	Inlet From Plant		
SAMPLE COLL. TIME								
STATION DESCRIPTION AND REMARKS		Harry Stiles Chf in Chge. USFWS Tel. 234-4612						
CODE	PARAMETER							
	Pb	35	30	35	45	75		
	Cu	6180	4120	5930	5670	2580		
	Zn	131,300	220,500	162,800	94,500	26,200		
	Fe	1094,000	925,000	1090,000	750,000	613,000		
	Mn	139,000	116,300	108,000	67,900	24,900		
	Cl	1480	2100	1320	950	305		
	Ca	775	750	775	700	315		
	pH	2.4	2.5	2.3	1.8	1.3		

Results in mg/l unless otherwise indicated, pH in units, turbidity in JTU, specific conductance in μmhos/cm, as per STORET.

GPO 842-589

R8EPA-012

all results shown for metals parameters

Mr Case 122

James J. Hogue, Sr. Resident Agent 13 May 1976
125 S. State St., 2205 Federal Bldg., Salt Lake City, UT 84138

Clinical Diagnostician, NFWHL
Madison, Wisconsin 53705

Preliminary Necropsy Report (PR 122)

A group of the specimens (collected from the settling ponds of the ceramic factory) which you sent us has now been necropsied and tissues from these birds are being analyzed chemically. We wish to report to you our findings to date:

76-861 There were no lesions suggestive of aspergillosis, avian cholera, duck plague, The gizzard appeared normal. There were no lead shot present but it was filled with what appeared to be duckwort. Bacteriological cultures of the liver were negative. Tissues from this bird are now being analyzed for various chemicals that might be obtained from a ceramic plant's waste.

76-862 Green winged teal, adult male. Again, no gross evidence of injuries, no DVE, no lesions of avian cholera or duck plague. Bacteriological cultures are negative. A few *Capillaria* ova were found in the large intestine. Liver tissue is being analyzed.

76-863 Long-billed curlew, adult. This bird was so rotten that it could not be sexed. Tissues were really not suitable for any type of postmortem examination and were discarded.

76-864 Green-winged teal, adult male. Again, this bird had been in fairly good flesh. It had no injuries. No lesions suggestive of avian cholera, aspergillosis, or duck plague. Liver tissue had been sent to the chemist.

As soon as we receive results of the chemical analysis, we will pass them on to you.

The carcass of the two teal and the pintail have been retained as well as the unopened birds for use as possible legal evidence.

Louis N. Locke

Louis N. Locke, DVM
Clinical Diagnostician

LNL:jm

NWHR -122

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

TO : Dr. Louis Locke
National Fish & Wildlife Laboratory

DATE: April 12, 1976

FROM : Senior Resident Agent James H. Hogue
Salt Lake City, Utah

SUBJECT: Migratory Birds Being Submitted for Necropsy

Samples were picked up from evaporation ponds of Filtrol Corporation, 2580 Andrew Avenue, Salt Lake City, Utah, Salt Lake County. Filtrol is a clay products company. Water used in their manufacturing processes drains into a series of four ponds covering a total area of about one section. It isn't known what chemicals or metals are used in their manufacturing processes.

Cause of death needs to be determined so a report can be filed with the U.S. Attorney for his consideration in filing charges against Filtrol Corporation under provisions of the Migratory Bird Treaty Act. Since it is possible that these samples will be used as evidence in Federal Court, chain of custody needs to be maintained on the seizure tags. If more space is required, the enclosed forms can be used.

Apparently, the birds have died from ingesting the water from the ponds. The fresher birds were found floating; the feathers were not soaked up so it is doubtful that the birds died from exposure. Several species of birds have been picked up in and adjacent to the ponds; pintails, mallards, green winged and blue winged teal, scaup, widgeon, canada goose, loon, grebes, avocets, long billed curlew, swallow, ring billed and California gulls, and terns. Most of the carcasses were too deteriorated to be submitted for analysis, except those being submitted.

J. H. Hogue

Enclosure

5010-108

United States Department of the Interior

Fish and Wildlife Service

National Wildlife Health Research Center
6006 Schroeder Road
Madison, Wisconsin 53711-6223

TAKE PRIDE IN AMERICA

In Reply Refer to:

March 18, 1992

Memorandum

To: SRA Richard Branzell
Reno, Nevada

From: Wildlife Disease Specialist

Subject: Bird Mortality Associated With Use Of Acidic Water

I have attached the final reports and other related materials on three NWHR cases. Case 479 has an Inv # listed.

I talked to SA Cindy Schroeder (now in Madison) this afternoon. She worked on several cases around 1980 that involved FMC Corporation trona (soda ash) mines. There are low pH problems there also. She said Terry Grosz, ARD Region 6 is very familiar with these cases; you can also call her. Apparently the Wyoming cases had much better documentation of the problem than the Nevada cases.

Let me know if I can be of further help.

Kathryn Converse

Kathryn Converse

KC:jaf

Attachment

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

M Case 479
PR 479
11 APR 1977

TO : Dr. Milton Friend, Clinical Diagnostician NFWHL DATE: April 5, 1977
ATTN: Dr. Steven Kerr

FROM : James H. Hogue, Senior Resident Agent
Salt Lake City, Utah

SUBJECT: Birds Submitted on March 31, 1977 For Necropsy (INV 7-13475 DN)

On 3-31-77 the following birds were submitted to you for necropsy:

Canada goose	- 1	Redbreasted merganser	- 1
Green-winged teal	- 1	Avocet	- 1
Pintail duck	- 1	Ruddy duck	- 1

These birds were taken from the Filtrol Corp. ponds, Salt Lake City, Utah on 3-30 and 3-31-77. Enclosed is a chain of custody receipt for the birds. Will you please sign it and return it to this office.

J. H. Hogue

Enclosure

Signed & returned with
Statistic specimen were incinerated.
SK

5010-106

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

DTR Case 479

20 April 1977

Jim Hogue, Senior Resident Agent
125 S. State St.
Salt Lake City, Utah 84138

Field Diagnostician, NFWHL

Final Report on Waterfowl (PR 479)

These specimens were received by our lab on April 4, 1977.

77-1125	Merganser	Male
1126	Pintail	Male
1127	Canada Goose	Male
1128	Green Winged Teal	Male
1129	Merganser	Male
1130	Avocet	Male
1131	Pintail	Female
1132	Ruddy Duck	Male

All specimens had essentially identical lesions. The nares, pharynx and larynx contained a white mucoid material which plugged the tracheal opening. All esophagi contained a white mucoid material sloughing from the surface. The lining of the esophagus was gray and leathery in appearance. The mucosa of the intestinal tracts were necrotic and sloughing. The intestines were firm and leathery and appeared like they had been "fixed" as if placed in formalin. Even in the two pintails which were rotten, the intestines were still in "fixed" condition.

According to last year's water chemistry, the pH is as low as 1.8. If this is true again this year, the acidity of the water would produce the lesions seen. In view of the fact that birds only use this area when forced in by weather, one may speculate that prolonged exposure (overnite) may be enough time to produce these lesions.

Viral and bacterial cultures were negative for significant pathogens.

Patuxent Wildlife Research Center was advised of the problem but Dr. Stickle felt if it was merely a chemical burn, they could not pick up any residues in chemical analysis.

As we discussed previously, positive identification may possibly be detected by:

1. Placing captive waterfowl in a trap on the Filtrol pond and feeding them there

2. Collecting the water and force feeding captive birds

3. Collect the water in a dishpan and place ducklings in it.

As we discussed previously, positive identification may possibly be detected by:

1. Placing captive waterfowl in a trap on the Filtrol pond and feeding them there

2. Collecting the water and force feeding captive birds

3. Collect the water in a dishpan and place ducklings in it.

Keep us advised of any results and if we can be of further help, please call us.

Stephen M. Kerr, DVM

SMK:kr

WHR - Case 479

IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE
P. O. Box 334
Brigham City, Utah 84302

PR 479 and others from Filtrol Company

Dr. Louis Locke
National Fish & Wildlife Lab
c/o University of Wisconsin
Madison, Wisconsin

June 20, 1979

Dear Dr. Locke:

Thought you would like to know that a case you worked on about a year ago has been terminated. FILTROL INC. INV 7-13475 was heard on May 22, in U.S. District Court in Salt Lake City, UT. The magistrate found FILTROL guilty of 10 counts of unlawfully taking migratory birds (157 over a period of two years), and fined them $1,000. As you may recall this case involved birds that died as a result of chemcial toxins that were dumped into an evaporation pond belonging to FILTROL. Naturally I was very disappointed in the fine and had a long talk with the judge afterwards,

If you have any birds, water samples, etc., they can now be disposed of since the case is over. Thanks so much for your help in this case--we are still going to keep an eye on these guys and hopefully we'll do better in court next time.

Sincerely,

Cindy Schroeder

Cindy Schroeder
Special Agent

PS Have been receiving your necropsy reports on eagles in good order. They have been valuable to me and a great interest to those who have picked up the birds. Thanks again.

MF Thanks copy sent to WO.

NWHL [illegible] 5706

Epiz: 85-071

UNITED STATES GOVERNMENT

memorandum

DATE

August 30, 1985

REPLY TO ATTN OF

Wildlife Pathologist, National Wildlife Health Laboratory, Madison, WI

SUBJECT

Results of postmortem examination of gulls (NWHL:5706-001 & 002) and and water sample (NWHL:5706-003)

TO:

S/A Robert Gelvin, USFWS Law Enforcement, Salt Lake City, Utah

I am enclosing copies of the two necropsy reports, the water pH report, and the PWRC report on brain cholinesterase levels for your files. Now for some general comments.

The gulls had no lesions suggestive of infectious diseases and the tests for botulism were negative.

The brains were removed and sent to PWRC for brain cholinesterase studies. You had indicated that two carbamate-type pesticides were being used locally to kill grasshoppers and when carbamates kill they will cause a 50% or greater reduction in the brain cholinesterase. No such reduction was found and tests on the stomach contents (grasshoppers) revealed that no such pesticides were present.

The water sample was very acidic, pH of 2.9. Several years ago at another site in Utah, we lost a number of waterfowl on a pond with a pH of 1 (extremely acidic) upon necropsy, these waterfowl were found to have ulcers in their oral cavity, in the esophagus and proventriculus. No such ulcers were found in either of these two gulls though.

I would like to suggest that you consider capturing a couple of gulls and dosing with the suspect pond water. This what we finally had to do in the previously mentioned Utah case (the pond with pH of 1). Once we demonstrated that it was in fact the pond water that killed the waterfowl, we were able to convict the company in Federal Court.

Encls.

LNL/mas

Louis Locke

OPTIONAL FORM NO 10
REV 1-80
GSA FPMR 41 CFR 101-11.6
5010-114

GPO : 1984 O - 433-783

85-071

NWHR Case 5706

UNITED STATES GOVERNMENT

memorandum

DATE: July 30, 1985

REPLY TO ATTN OF: Wildlife Pathologist, National Wildlife Health Laboratory, Madison, WI

SUBJECT: Preliminary findings in gulls and waterfowl from Bingham Reservoir, Provo, Utah (~~NWHL:5706-001~~, 002, & 005)

TO: S/A Robert Gelvin, USFWS-Law Enforcement, Salt Lake City, Utah

5706-001. California gull. This gull was an adult female weighing 465 grams. No lesions of infectious diseases were found. The esophagus contained a large number of grasshoppers. Tissues saved for laboratory studies. Brain and bolus of grasshoppers sent to PWRC for pesticide analysis.

5706-002. California gull. Adult female, 700 grams. No lesions of infectious diseases were found. The lower esophagus, proventriculus, and gizzard were packed with ingested grasshoppers (79.9 grams of grasshoppers!). Tissues saved for laboratory studies. Brain and grasshoppers sent to PWRC for pesticide analysis.

5706-005. Water sample. This rust-colored water sample had a pH of 2.92!

As more information becomes available from results of various ancillary laboratory tests, I will send it to you.

LNL/mas

Louis Locke

8/29/85

Die-off ended by mid-August (Aug. 15)

Birds moved off pond when

hot weather moderated.

LNL

OPTIONAL FORM NO. 10
(REV. 1-80)
GSA FPMR (41 CFR) 101-11.6
5010-114

☆ U.S. GOVERNMENT PRINTING OFFICE : 1984 O - 421-526 (9238)

Epizoot 85-011 S/06 July 5, 1985
NWHL case

· Wm Kurey, RCA-FWS of Grand Junction, Co. called to alert us to gull die-off and request NWHL assistance. I then called Agent Gelvin and he will ship specimens.

Kurey told me pond water was collected on Oct 5, 1983 and found to have following:

POND WATER

pH = 3.3

Dissolved solids = 68,000 mg/kg

(SO_4^-) = 41,000 "

Cl^- = 190 "

not clean → Al = 3,000 micro/a mg/liter

not clean → Fe = 1450 "

Zn = 130 micrograms/liter

As = 1.7 "

Hg = 0

Mg = 1300 microg./liter. Major cation.

Se = ~~1.32~~ 0.41 micrograms/liter

Pb = 1.32 "

Cr = 0.53 "

Cu = 1113 "

~~No~~ little carbonate found.

Mr. Kurey also told me that H_2SO_4 used in the mine's leaching process

the reactivation process in the laboratory was successful and suggests both specimens had experienced recent exposure to some reversible anticholinesterase agent, probably a carbamate, but the available data are not sufficient to warrant a diagnosis of death from anticholinesterase poisoning. The gastrointestinal contents were analyzed for presence of several common carbamates and none were detected.

E. F. Hill

E. F. Hill
Research Toxicologist

U. S. Fish and Wildlife Service

Patuxent Analytical Control Facility

Quality Assurance Report

RE: 008-85-R6

The analyses on the above mentioned samples were performed at:

The Patuxent Wildlife Research Center, Laurel Maryland.

This laboratory is operated by the Fish and Wildlife Service and performs it's work under a quality asurance plan. This lab is tested frequently and the precision and accuracy of the analyses performed there are acceptable. We have great confidence in the accuracy of these data.

John F. Moore

PATUXENT WILDLIFE RESEARCH CENTER - ANALYTICAL REPORT - PR-3201

SUBMITTER: Bob Gelvin, Special Agent, Salt Lake City, Utah.

SPECIMEN DATA: Two California gulls found dead near a local pond. This is the third year in a row that a die-off has occurred--always around early to mid-July. (RCA # 008-85-R6)

ANALYSIS: Brain cholinesterase (ChE) activity (Ellman et al., Biochem. Pharmacol. 7:88, 1961). Gut contents for presence of carbofuran, oxymyl and carbaryl. Lower limits of reportable residues = 0.5 ppm for carbofuran and carbaryl and 5.0 ppm for oxymyl.

SAMPLE NO.	NWHL NO.	BRAIN CHE ACTIVITY [1]	PERCENT INHIBITION [2]	PPM CARBOFURAN	PPM OXYMYL	PPM CARBARYL
85D-30	5706-001	13.2	0	-	-	-
85D-31	5706-002	19.7	0	-	-	-

- = none detected

1
Micromoles acetylthiocholine iodide hydrolyzed per minute per gram, wet weight.

2
Percent inhibition is based on mean for control specimens of the species. No control values were available--based on normal values for ring-billed gulls (mean ChE activity = 17.9 umoles/min/g; diagnostic threshold = 12.8) and laughing gulls (mean ChE activity = 16.5 umoles/min/g; diagnostic threshold = 8.4).

CONCLUSION: Approximately 50 percent inhibition of brain ChE activity is considered indicative of potentially lethal exposure to an anticholinesterase agent (Ludke et al., Arch. Environ. Contam. Toxicol. 3:1, 1975). Quantification of inhibition is based on normal ChE activity for the exact species of interest as derived by assay of a representative sample (e.g., approx. 5) of randomly collected specimens that were processed and preserved in a similar way as the subjects. In absence of such controls, comparisons are made to baseline data for phylogenetically similar species and qualitative inferences are sometimes appropriate. In this case, a control baseline was not available and therefore comparisons to data for ring-billed and laughing gulls were made and my preliminary conclusion was that neither subject specimen had experienced recent exposure to an anticholinesterase agent. However, because the brain ChE activity of the subjects were quite different, the primary suspect chemical is a carbamate, and no history was provided regarding postmortem time-lapse preceding collection and freezing of specimens; there was sufficient reason to suspect unequal partial postmortem reactivation of brain ChE had occurred in the field. My attempt to complete